Uniform Computation of Complexity Metrics in the .NET Platform

Ádám Sillye and Zoltán Porkoláb

Structural complexity metrics play important role in modern software engineering. Testing, bug-fixing cover more and more percentage of the software lifecycle. The cost of software maintenance is mostly depends on the structural complexity of the program. A good complexity measurement tool can trigger critical parts of the software even in development phase.

Several implementations of the famous metrics exist for the most popular development environments like Eclips [1], but surprisingly few targeting the Microsoft .NET platform [2]. In this typical multi-language environment it is essential to be able to compare the complexity of modules that are implemented in different programming languages. The only reliable way to achieve the comparability is to calculate the metrics in uniform – paradigm independent – way. The CIL command set of the .NET platform is suitable for this purpose [3].

Our tool computes several well-known structural and object-oriented metrics [4] and some newly developed paradigm-independent ones [5], and summarizes them in assembly, module, class, and method level. The results are exported in some easily reusable formats.

References

[1] Eclipse Metrics Plugin -`http://www.teaminabox.co.uk/downloads/metrics`

[2] Vil - View Intermediate Language - `http://www.1bot.com`

[3] Microsoft .NET platform - `http://www.microsoft.com/net/`

[4] Chidamber S.R., Kemerer, C.F. A metrics suite for object oriented design - IEEE Trans. Software Engineering, vol.20. pp.476-498, (1994).

[5] Fóthi Á., Nyéky–Gaizler J., Porkoláb Z The Structured Complexity of Object-Oriented Programs Computers and Mathematics with Applications (2002).